



AWWA Free Water Audit Software: Reporting Worksheet

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Water Audit Report for: **Ramona Municipal Water District (3710019)**
Reporting Year: **2018** **1/2018 - 12/2018**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

Volume from own sources: n/a 0.000 acre-ft/yr
Water imported: 7 4,116.080 acre-ft/yr
Water exported: n/a 0.000 acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt: 4 Value: acre-ft/yr
acre-ft/yr
acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **4,116.080** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered: 8 3,867.970 acre-ft/yr
Billed unmetered: n/a 0.000 acre-ft/yr
Unbilled metered: n/a 0.000 acre-ft/yr
Unbilled unmetered: 5 51.451 acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **3,919.421** acre-ft/yr

Click here: for help using option buttons below

Pcnt: 1.25% Value: acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt: 0.25% Value: acre-ft/yr

1.50% 0.25% acre-ft/yr
acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

196.659 acre-ft/yr

Apparent Losses

Unauthorized consumption: 10.290 acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: 3 58.903 acre-ft/yr
Systematic data handling errors: 7 9.670 acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **78.863** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **117.796** acre-ft/yr

WATER LOSSES: **196.659** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **248.110** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: 8 200.0 miles
Number of active AND inactive service connections: 8 9,685
Service connection density: 48 conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 8 150.0 psi

COST DATA

Total annual cost of operating water system: 10 \$20,214,785 \$/Year
Customer retail unit cost (applied to Apparent Losses): 9 \$5.52 \$/1000 gallons (US)
Variable production cost (applied to Real Losses): 5 \$1,385.00 \$/acre-ft ☒ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 69 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Customer metering inaccuracies

3: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software: System Attributes and Performance Indicators

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Reporting Year: **2018** **1/2018 - 12/2018**

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 69 out of 100 ***

System Attributes:

Apparent Losses:	78.863	acre-ft/yr
+	117.796	acre-ft/yr
=	196.659	acre-ft/yr
?	425.89	acre-ft/yr
Unavoidable Annual Real Losses (UARL):	\$141,851	
Annual cost of Apparent Losses:	\$211,879	
Annual cost of Real Losses:		

Valued at **Customer Retail Unit Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: {
Non-revenue water as percent by volume of Water Supplied: 6.0%
Non-revenue water as percent by cost of operating system: 2.2%

Real Losses valued at Customer Retail Unit Cost

Operational Efficiency: {
Apparent Losses per service connection per day: 7.27 gallons/connection/day
Real Losses per service connection per day: 10.86 gallons/connection/day
Real Losses per length of main per day*: N/A
Real Losses per service connection per day per psi pressure: 0.07 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 117.80 acre-feet/year
Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.28

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

Certified Validation Report: Provided by Validator

Audit Information:

Water Supplier Name: **Ramona Municipal Water District**

PWS ID: 3710019

System Type: **Potable**

Audit Period: **Calendar 2018**

Utility Representation: **Joe Lomelli**

Validation Date: **September 24th, 2019**

Meeting Time: **2 PM**

Sufficient Supporting Documents Provided: **Yes**

Validation Findings & Confirmation Statement:

Key Audit Metrics:

Data Validity Score: **69** Data Validity Band (Level): **Band III (61-70)**

ILI: **0.28** Real Loss: **10.86 gallons/connection/day**

Apparent Loss: **7.27 gallons/connection/day**

Non-revenue water as percent of cost of operating system: **2.2 %**

Certification Statement by Validator:

This water loss audit report has been Level 1 validated per the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34.

All recommendations on volume derivation and Data Validity Grades were incorporated into the water audit. ☒

If not, rejected recommendations are included here.

Validator Information:

Water Audit Validator : **Tanmay Thakur**

Qualifications: **Water Audit Validator Certificate issued by the CA-NV Section of the AWWA**

Validator Provided

Certified Validation Report Template, Part B: Provided by Utility

Water Supplier Name:

Water Supplier ID Number:

Water Audit Period:

Water Audit & Water Loss Improvement Steps:

Utility to provide steps taken in preceding year to increase data validity, reduce real loss and apparent loss as informed by the annual validated water audit:

Recommend customer meter accuracy testing based on different size and age. The meter accuracy testing documentation would help to derive a CMI for the next year.

Utility Provided

Certification Statement by Utility Executive:

This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audit and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.

Executive Name (Print)

Executive Position

Signature

Date

D. MICHAEL HENTS, PE

DIRECT ENGINEER



SEP. 26, 2019